

## RIVERS AND FLOODS

By RICHMOND T. ZOCH

[River and Flood Division, Montrose W. Hayes, in charge]

The tropical disturbance which passed over the Middle Atlantic States on August 23-24 caused rises in all the rivers of these States and the Delaware and Susquehanna passed the flood stage.

Reading, Pa., and Phillipsburg, N.J., had, during this flood, the highest actual gage readings of record although the water did not exceed the high-water marks which were reached before gages were established at these places. At Trenton, N.J., the water reached the highest stage since 1913. The Susquehanna did not reach a very high stage. The Delaware River caused considerable damage but with this exception, the rivers caused relatively little harm, as most of the damage was in the creeks and small tributary streams.

Very heavy downpours at and west of the Colorado-Kansas boundary in the headwaters of the Smoky Hill River on August 4-5 caused floods there. The property damage in Wichita and Scott Counties of Kansas was estimated at \$57,000 which is a very large item for such a sparsely settled territory. The official in charge at Topeka, Kans., comments as follows on this flood:

This flood spread across the comparatively level country with a wall of water reported 10 to 15 feet high and in places attained a depth of 25 feet. In its wake was a trail of ruined fields, wrecked farm buildings, and dead stock. Every bridge across Ladder (Beaver) Creek in Wichita County was washed out. Regular channels were ignored as head waters rolled over parched fields, pushing in the van heaps of weeds, hay, sticks, and debris with such force that a cloud of dust was raised as the flood progressed.

The very heavy rains around Shreveport, La., on July 23-26 (see article in the July issue of the REVIEW) caused the Sabine River at Bon Wier, Tex., to rise from 10.4 on July 24 to 18.2 on July 25; it continued to rise until August 2, when it reached 23.0 feet, the highest stage of record. High stages were also reached at the other stations on the Sabine River.

A severe flood in Cherry Creek near Denver, Colo., will be discussed in a later issue of the REVIEW.

Table of flood stages in August 1933

[All dates in August unless otherwise indicated]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
Lackawaxen: Hawley, Pa.....	<i>Feet</i> 9	24	24	10.0	24
Schuylkill: Reading, Pa.....	10	24	25	19.7	24
Delaware:					
Phillipsburg, N.J.....	22	25	25	25.0	25
Trenton, N.J.....	12	25	25	12.7	25
Susquehanna:					
Wilkes-Barre, Pa.....	18	24	25	20.1	25
Harrisburg, Pa.....	14	25	25	15.2	25
Santee:					
Rimini, S.C.....	12	17	31	14.9	20
Ferguson, S.C.....	12	20	25	12.2	23-24
MISSISSIPPI SYSTEM					
Missouri Basin					
Smoky Hill: Lindsborg, Kans.....	21	24	24	23.9	24
Grand: Gallatin, Mo.....	20	22	23	22.8	22
Arkansas Basin					
Fountain: Fountain, Colo.....	8	2	2	12.0	2
North Canadian:					
Woodward, Okla.....	5	20	20	5.3	20
Canton, Okla.....	5	29	31	6.3	31
Canadian: Canadian, Tex.....	5	31	Sept. 1	6.3	Sept. 1
Arkansas: Arkansas City, Kans.....	15	27	27	6.3	27
		29	29	15.0	29
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Logansport, La.....	25	July 24	2	34.6	July 25
Bon Wier, Tex.....	21	July 27	10	23.0	2
Orange, Tex.....	4	1	11	5.1	5-6
Trinity: Dallas, Tex.....	28	July 31	1	34.8	1
Pecos: Fort Sumner, N.Mex.....	5	4	4	5.5	4
Rio Grande: Mercedes, Tex.....	20	8	8	20.2	8

## THE WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDonald, in charge]

## NORTH ATLANTIC OCEAN

By W. F. McDONALD

**Atmospheric pressure.**—The average pressure during August 1933, as of the two previous months, was below normal over the Atlantic between Cape Farewell and Iceland and also over the Antillean region, while the eastern Atlantic had a steady though small average excess in the monthly barometer values throughout the same period.

The highest pressures over the Atlantic during August were 30.40 to 30.50 inches, between the Azores and the English Channel on the first two days of the month, and again on the 20th between the Azores and Newfoundland. The lowest reported pressure was 28.54 inches, observed on the 23d off Cape Hatteras by the American tankship *R. J. Hanna* while in a tropical hurricane. Two days later the Polish steamship *Pulaski* recorded 28.78 inches near the center of a different depression (of extra-tropical origin) on the fifty-fifth parallel about midway between Belle Isle and Ireland.

The Atlantic HIGH was well developed and stable until August 23d, but it was greatly weakened thereafter, especially between the 24th and 28th, when the highest barometric readings were only 30.00 to 30.10 inches.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, August 1933

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Julianehaab, Greenland	29.62	—0.18	29.92	19	29.25	16
Reykjavik, Iceland	29.63	—0.18	30.11	11	29.08	17
Lerwick, Shetland Islands	29.80	—0.00	30.30	12	29.25	18
Valencia, Ireland	30.05	+0.13	30.44	3	29.57	15
Lisbon, Portugal	30.05	+0.03	30.20	14	29.90	24
Madeira	30.05	+0.02	30.18	14	29.87	15
Horta, Azores	30.21	+0.01	30.42	14	29.93	27
Belle Isle, Newfoundland	29.86	—0.03	30.16	21	29.42	3
Halifax, Nova Scotia	30.03	+0.02	30.38	7	29.76	26
Nantucket	30.00	+0.01	30.40	7	29.61	25
Hatteras	29.96	—0.04	30.24	7	28.67	23
Bermuda	30.07	—0.07	30.22	1, 2	29.66	21
Turks Island	29.97	—0.07	30.08	3	29.80	22
Key West	29.94	—0.04	30.07	14	29.71	22
New Orleans	29.96	—0.02	30.12	14	29.74	23
Cape Gracias, Nicaragua	29.86	—0.02	29.92	11, 12	29.76	23, 25

NOTE.—All data based on a.m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

**Cyclones and gales.**—The major storms of the month were of tropical origin, as discussed briefly under the succeeding topic heading and more fully in another place in this issue.